
Ball and Socket Joint with Angle Sensor

Patent Claims

- 5 1. A ball and socket joint with a ball and socket joint housing (1), with a ball pivot (2) mounted in the ball and socket joint housing (1), with a bipolar field transducer (4) arranged at the joint ball (3) of the ball pivot (2) and at least one said magnetic field direction sensor (5), which is arranged at the ball and socket joint housing (1) and interacts with the magnetic field generated by the field transducer (4), characterized in that only one pole of the bipolar field transducer (4) is arranged on
- 10 the surface of the ball.
2. A ball and socket joint in accordance with claim 1, characterized in that the two poles of the field transducer (4) are arranged in the axis of symmetry of the ball pivot (2).
3. A ball and socket joint in accordance with claim 1 or 2, characterized in that the field transducer (4) is a bar magnet.
- 15 4. A ball and socket joint in accordance with one of the claims 1 through 3, characterized in that the joint ball (3) consists of a ferromagnetic material and the field transducer (4) is embedded in the joint ball (3) in a layer (6) consisting of a nonmagnetic material.

5. A ball and socket joint in accordance with claim 4, characterized in that the pole of the field transducer (4) located in the joint ball is in contact with the ferromagnetic joint ball (3).

6. A ball and socket joint in accordance with one of the claims 1 through 5, characterized in that at least two said magnetic field direction sensors (5), which interact with the field generated by the field transducer (4), are arranged at the ball and socket joint housing (1), wherein the measuring reference axes (x, y) of the magnetic field direction sensors (5) are located in one plane and do not extend in parallel to one another.

7. A ball and socket joint in accordance with claim 6, characterized in that the two magnetic field direction sensors (5) are arranged on a plate (7) at an angle of 90° in relation to one another.

8. A ball and socket joint in accordance with claim 7, characterized in that the plate (7) is arranged at a closing cover (8) of the ball and socket joint housing (1).

9. A ball and socket joint in accordance with claim 7 or 8, characterized in that the plate (7) is arranged at right angles to the central axis of the ball pivot.

10. A ball and socket joint in accordance with one of the claims 1 through 9, characterized in that the ball and socket joint is used as a vehicle level control in a chassis of a vehicle, wherein the ball and socket joint housing (1) and the ball pivot (2) are arranged between the chassis of the vehicle and the wheel suspension of the vehicle.

Figure 1

through

Figure 4